

PREVENTING
REPETITIVE MOTION
INJURIES



Working Smart
with
Your Hand and Arm

REPETITIVE MOTION INJURIES



A Repeat Performance

Bending your wrist, raising your arm above your head, or working with your elbow at an awkward angle—each is a simple movement you use to perform your job throughout the day. But if you repeat these or other motions over and over again while you work or play, you may develop **repetitive motion injuries** (also called cumulative trauma disorders or CTD). It could be days, months—even years—before symptoms of pain or tingling appear in your hand or arm. But if you know how to work and play smart, symptoms may never appear. And if they do, you can take steps to prevent them from getting worse.

ARE YOU AT RISK?

If you use the same hand or arm movements each day, you could be at risk for developing repetitive motion injuries. Use this "inspection checklist" to see if you're likely to develop repetitive movement problems. If you check even one box, take steps now to reduce your chances of a repetitive motion injury.



This booklet is not intended as a substitute for your employer's policies or for professional healthcare.
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A MOVING PROBLEM

Think: Performance Plus

The key to preventing repetitive motion problems is to work and play smart. Think before you move or use tools. And be aware of any repetitive motions you use on or off the job. Take the first step toward protecting yourself by **understanding repetitive motion injuries** and how they start. Then **make prevention your priority**. But if prevention alone doesn't work and you begin to feel symptoms, **take action early** with self-care. If self-care isn't enough, get early evaluation and treatment. Exercise smart to strengthen your hand and arm.



Do Movements Include...

- ☐ Using a lot of repetition in your hand and arm—either at work or play?
- ☐ Frequently bending your wrist?
- ☐ Frequently grasping or pinching objects?
- ☐ Frequently raising your arm above your shoulder?
- ☐ Frequently using a lot of force with your hand or arm?

Do Symptoms Include...

- ☐ Waking up at night because of pain in your hand or arm?
- ☐ Numbness in your fingers, hand, or arm?
- ☐ Tingling in your hand or arm?
- ☐ Swelling or tenderness in your fingers, hand, or arm?
- ☐ Ongoing aches in your hand or arm?

YOUR HAND AND ARM AT WORK

Think of your hand and arm as one of nature's more perfect inventions. Without much upkeep, this amazing, well-designed "tool"—made of muscles, nerves, tendons, and bones—can help you do the hundreds of different motions needed to work or play. Your role? Keeping your hand and arm in top condition.

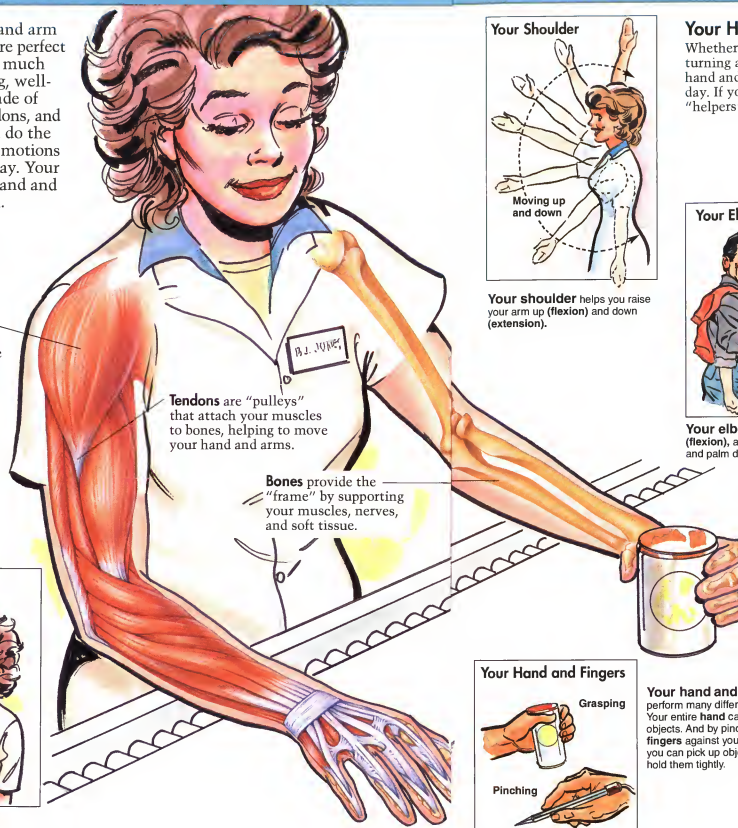
Anatomy of Your Hand and Arm

Muscles work like an engine, providing the power for you to move your hand and arm.

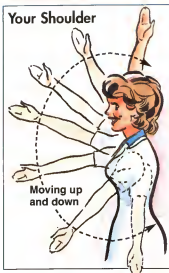
Tendons are "pulleys" that attach your muscles to bones, helping to move your hand and arms.

Nerves form an "electrical system" to carry messages so that you can move your hand and arm.

Bones provide the "frame" by supporting your muscles, nerves, and soft tissue.



Your Shoulder



Your shoulder helps you raise your arm up (**flexion**) and down (**extension**).

Your Hand and Arm in Motion

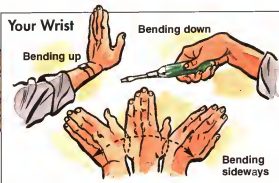
Whether you're tossing a jacket over your shoulder, turning a doorknob, writing, or holding a cup, your hand and arm perform constantly throughout the day. If you make the right moves, they'll be your "helpers" for a lifetime.

Your Elbow



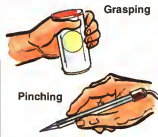
Your elbow is a hard-working "hinge" that lets you bend your arm (**flexion**), as well as rotate your forearm by turning your hand palm up and palm down.

Your Wrist



Your wrist is a joint that allows you to bend your hand up (**extension**), down (**flexion**), and sideways. Your wrist can stay in a straight (**neutral**) position, and it can rotate.

Your Hand and Fingers



Your hand and fingers perform many different tasks. Your entire hand can grasp objects. And by pinching your fingers against your thumb, you can pick up objects and hold them tightly.

WORKING INTO REPETITIVE MOTION INJURIES

Repetitive motion injuries don't just happen. By combining highly repetitive motions with fast, forceful movements and awkward positions over a period of time, you may set yourself up for repeat motion problems. Overusing your hand and arm—without giving them a chance to rest—increases the odds of

A Formula for Trauma

Are you setting yourself up for repetitive motion injuries? You're more likely to get them if you frequently use too much force or repeat the same movements when you work or play.



Repetition

If you repeat the same motion, the same way, for long periods of time, you are likely to overuse and stress your muscles.



Position

If you hold your hand and arm in awkward positions, you put unnecessary pressure on nerves, muscles, and tendons.



Force

If you use too much force when you work, you're more likely to cause injury to nerves, muscles, and tendons.



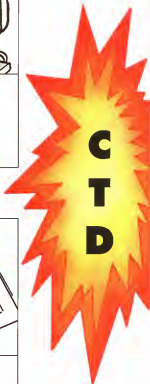
Time

If you repeat the same movements for days, months, or years, you're more likely to develop repetitive motion problems.



No Rest

If you don't get enough rest, your hand and arm don't have a chance to recover from the motions and pressure that can lead to repetitive motion injuries.

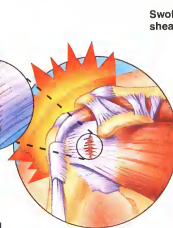


injury. The result? Pain and minimal movement. To break the pattern, work and play smart and learn how to prevent repetitive motion injuries and their symptoms. Then you can avoid repetitive motion problems and look forward to remaining active and productive.



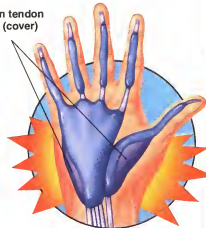
Tendinitis

is inflamed and sore tendons. **Symptoms** include pain, swelling, tenderness, and weakness in your hand, elbow, or shoulder.



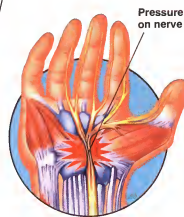
Rotator cuff injury

occurs when one or more of the four rotator cuff tendons in your shoulder is inflamed. **Symptoms** include pain and limited movement of your shoulder.



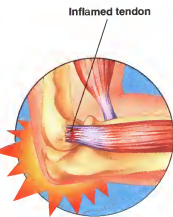
Tenosynovitis

is the swelling of the tendon and the sheath that covers it. **Symptoms** include swelling, tenderness, and pain in your hand or arm.



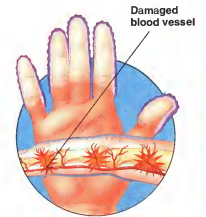
Carpal tunnel syndrome

is caused by too much pressure on the median nerve that runs through your wrist. **Symptoms** include numbness, tingling, an aching sensation, and pain in your wrist (mostly at night).



Epicondylitis

(also called "tennis elbow") is due to inflammation of the tendons in your elbow. **Symptoms** include pain with some swelling, and weakness.



White finger

occurs when blood vessels in your fingers are damaged. **Symptoms** include paleness in fingers, numbness, tingling, and a sense that your finger is "on fire."

WORK SMART WITH YOUR WRIST AND HAND

Certain wrist and hand movements may increase your chances of developing repetitive motion problems. But by making a few small changes, you can break the movement patterns that could otherwise set you up for injury. One way to

avoid problems is to work with well-designed tools, and know how to hold and use them. And learn how to modify the way you use your wrist and hand to avoid harming your muscles, nerves, or tendons.

Working with Tools

To prevent repetitive motion injuries in your wrist and hand, choose the right tools and learn to use them properly. If you have questions, check with your supervisor.

The Right Size

Using tools that are the right size and length for your hand keeps you from having to "adjust" by using awkward positions to hold them.



The Best Shape

Use tools that are the right shape for the job you're doing, so you won't have to use too much force on the wrong part of your hand.



The Least Vibration

Use power tools with the least amount of vibration possible. Speak with your employer about taking steps to reduce vibration.

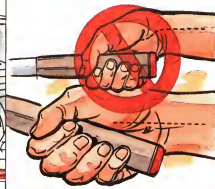


Know the Right Position

How you place yourself at your work station can determine the position of your wrist and hand. To work smart, stand or sit so your arms and wrists remain in a natural (neutral) position.

Keep Your Wrist Straight

Be sure to keep your wrist straight (neutral) when you work. By avoiding bent, extended, or twisted positions for long periods of time, you keep extra pressure off your wrist and hand.



Use Both Hands

To give your hands a rest, try using one hand for a while, then the other.



Use Your Whole Hand

Use as much of your hand as possible when holding an object, so you won't have to pinch with your fingers.



WORK SMART WITH YOUR ELBOW AND SHOULDER

You can take action to prevent repetitive motion injuries in your elbow and shoulder by knowing how to use and move them safely. And by knowing your "safety zone," you can

Find Your Safety Zone

You have a ready-made "safety zone" that lets you work or lift things with less chance of hurting your elbow and shoulder. To find your safety zone, stand up, then let your hands drop to your sides. Where your knuckles are is your **lower** safety limit. Your shoulder level is your **upper** safety limit. Work within this range to protect your elbow and shoulder.



Keep Your Elbows Bent

Bend your elbows to keep loads close to your body. This decreases the amount of force you use to do your job, putting less weight and pressure on your shoulder.



Give Yourself Elbow Room

Working with your arms too close or too far from your body could cause repetitive motion injury. Whenever possible, allow enough room to use as much of your arm as you can—while keeping your wrist straight.

avoid extreme movements and keep from straining your muscles and joints. The trick: Keep your arm close to your body, and avoid using back-and-forth movements with your elbow bent. Use less effort by using your entire arm to do the job.

Use Your Whole Arm

Be sure not to "lock" your elbow when you're working with your arm and hand over your head. By making broad arm strokes, you use less of your forearm and more of your whole arm. This keeps extra force off your elbow.

Lift Lighter Loads

When possible, lift one item at a time. You're less likely to strain your muscles if you limit the weight of what you lift—even if it means lifting more times.



SELF-CARE TIPS

Sometimes, despite your efforts to prevent repetitive motion injuries, symptoms appear—and resting alone may not cure the aches in your hand or arm. If you get repetitive motion injury symptoms, follow some easy self-care steps to feel more comfortable.

Wraps and Straps

Wear wraps and straps while you work, to keep your hand and arm from repeating damaging movements and position. Check with your employer about using wraps and straps correctly.



Pain Relievers

Take pain relievers to reduce pain and swelling. Check with your doctor before taking any medication.



Ice

Apply ice to reduce pain and swelling.

Take a Break

Time out

One of the best ways to recover from repetitive motion symptoms is to give your hand or arm time to rest. Take lunch and other scheduled breaks and, when possible, vary your activities.

Stretch and relax

Between repetitions, give the over-used parts of your hand and arm time to recover. Speak with your employer about useful stretching and relaxation ideas to help prevent problems.

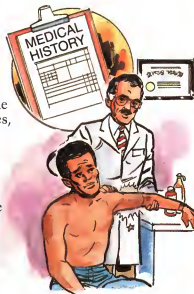


WHEN SELF-CARE ISN'T ENOUGH

Sometimes prevention and self-care alone don't stop repetitive motion symptoms. That's when it's time to see a doctor who specializes in occupational medicine. Your doctor will give you a medical evaluation to determine the best treatment options for you.

History and Physical

To check for repetitive motion problems, your doctor will ask you to describe your symptoms. Your doctor will also examine you to rule out other injuries, and to confirm whether the problem relates to a nerve, muscle, or tendon in your hand, arm, or shoulder. You may also be asked to describe any work or leisure activities that may involve repeat motions.



Diagnosis

Tests to diagnose repetitive motion injuries may include: x-rays to check for other injuries, **nerve conduction studies** to see how your nerves are working, muscle tests to check muscle strength and health, and **blood tests** to check for other problems.



Splints

Your doctor may recommend that you wear a splint for some period of time to restrict motion and allow damaged tissues to heal.



Medication

Frequently, anti-inflammatory drugs are necessary to treat repetitive motion injuries. Other medication, including cortisone, may also be used.



Surgery

In rare cases, surgery may be needed to relieve symptoms of repetitive motion injuries. Surgery can also help prevent permanent damage and stop ongoing pain.



Physical Therapy

Following a program of physical therapy may relieve soreness and pain in muscles and joints. **Ultrasound** treatment can reduce stiffness.



Follow-up is necessary so your doctor can re-evaluate your condition. Be sure to keep appointments so you can get better as quickly as possible.



EXERCISE SMART: MAKE THE RIGHT MOVES

Whether your goal is to prevent repetitive motion injuries or to recover from them, just a few simple exercises can bring big benefits. Exercise can help prevent further injury by improving the movement of your hands and arms. And by increasing your strength and endurance, you're more likely to stay healthy and be able to work comfortably for longer periods of time. Your doctor and

Stay Flexible

If you use the same muscles all day long, range-of-motion exercises (such as bending and extending your arm and hand), may maintain or restore normal movements.



Wrist flexion
Lower your wrist from a straight position.



Wrist extension
Raise your wrist from a straight position.



Wrist rotations
Keeping your elbow still, rotate your wrist: palm up, palm down.

Shoulder circles
Reaching out, slowly rotate your arms in small circles, first forward, then backward.



Build Strength

Strength-building exercises improve the strength and tone of your muscles. By using weights and other equipment, you can slowly and safely increase your muscle strength.



Wrist curls
Place your forearm on a table with your wrist over the edge. Grasp the weight, then curl your wrist toward your arm. Slowly uncurl.



Rubber ball squeeze
Squeeze your fingers around a small rubber ball. Release.



Lift weights
Starting with your arm at shoulder level, bring your arm in front, then down to your side.

With the weight in your hand, raise your arm from your side to your shoulder level. Release.



healthcare professional can help set up a daily exercise program for you. Developing a general plan of action that helps you live a healthy lifestyle—both on and off the job—is another good move you can make to keep in shape.

Before beginning an exercise program, check with your doctor to make sure each exercise is right for you.

Increase Endurance

Building up your hand and arm isn't enough to get in shape. To be able to work for long periods of time comfortably, aerobic exercise, such as walking, is your best bet.



Stay Healthy

Living a healthy lifestyle is the best move you can make to ward off the stress and strain of your daily activities.

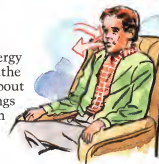


Eat Well

Maintain your ideal body weight to feel better at work and play. Choose low-fat, low-salt, high-fiber foods as often as possible.

Learn to Relax

Get enough rest so you can work and play with more energy and stay alert. Breathe deeply, and think about pleasant surroundings and situations when you feel stressed.



Work Smart at Home and Play

You can also prevent repetitive motion injuries by making smart moves at home. Choose hobbies and sports that allow you to use different muscles from the ones you use at work. By doing simple exercises, eating well, and relaxing, you can give yourself a rest from your routine—and increase your odds of avoiding repetitive motion problems.



MOVING IN THE RIGHT DIRECTION

You and your employer can work together to prevent and treat repetitive motion injuries. Your best plan of action: move your hand and arm correctly while you work and get early treatment if symptoms arise. Work smart and you can prevent repetitive motion injuries on the job.



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